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ABSTRACT

This study examined peer interaction in four racially mixed eighth grade classrooms. Observational data were gathered on the interactions of 69 white children and 32 black children during the course of one semester. The study found considerably more cross-race peer interaction than have previous studies conducted in non-academic settings in interracial schools. Nonetheless, children interacted significantly more with peers of their own race than with peers of the other race. Planned comparisons revealed that this tendency was due to very strong own-race preferences among the girls. In contrast, boys interacted cross racially at approximately the rate that would be expected if race were not a factor in interactant choice. The interactions of males were predominantly mutual in nature, while those of females were one-sided. Negative behavior characterized less than one percent of all interactions. An analysis of the orientation of the interactions suggested that cross-race interactions of all groups were more task related than within-race interactions. In turn, within-race interactions were more social in orientation than were cross-race interactions. (Author/APM)

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An Observational Study of Peer Interaction in Racially-Mixed "Accelerated" Classrooms

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Running head: Peer Interaction

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Abstract

This study explored the amount and type of peer interaction occurring in four racially-mixed eighth grade classrooms. Observational data were gathered on the peer interactions of 69 white children and 32 black children each week during the course of a semester. The race and sex of the person with whom the subject was interacting were coded as were the mutuality (one-sided, mutual), the affective tone (positive, neutral, negative) and the orientation (task-oriented, ambiguous, social) of the behavior. This study found considerably more cross-race peer interaction than have previous studies conducted in non-academic settings in interracial schools. Nevertheless, children interacted significantly more with peers of their own race than with peers of the other race. Planned comparisons revealed that this tendency was due to the very strong own-race preference of the girls. In sharp contrast, the boys interacted cross-racially at approximately the rate which would be expected if race were not a factor in interactant choice. The interactions of males were predominantly mutual in nature, while those of females were predominantly one-sided. There were no major differences in the tone of the inter- or intra-racial interactions of the children in the four sex-race subgroups. Negative behaviors constituted less than one percent of all interactions. Analysis of the orientation of the interactions suggested that cross-race interactions of all groups were more task-related than within-race interactions. In turn, within-race interactions were more social in orientation than cross-race interactions.

An Observational Study of Peer Interaction in Racially-Mixed "Accelerated" Classrooms

There has been a great deal of research on the racial attitudes of children in desegregated schools. (For reviews see Carithers, 1970; Cohen, 1975; McConahay, 1978; Schofield, 1978; St. John, 1975; and Stephen, 1978). In contrast, there are extremely few direct studies of interracial behavior in such schools. This fact is vividly illustrated by examination of St. John's (1975) list of studies on desegregation and intergroup behavior. The large majority of these studies used variants on traditional sociometric techniques (Moreno, 1934) which involve asking people to report whom they would choose to interact with in various situations. Rather remarkably, only one of the 19 studies St. John cites involved actual observation of intergroup behavior in a desegregated school.

The widespread use of sociometric measures to the virtual exclusion of direct observation of that behavior is unfortunate for a number of reasons. First, almost all of the data suggesting that choices on sociometric tests reflect actual behavioral choices has been gathered in all-white classrooms (Biehler, 1954; Bonney & Powell, 1953; Byrd, 1951). Second, since race relations is a highly charged and controversial topic, one might expect sociometric measures, like other self-reports, to be markedly influenced by social desirability biases and evaluation apprehension (Rosenberg, 1969). Third, even if sociometric choices were shown to be strongly associated with actual behavioral patterns in interracial classrooms, there is still some question of how appropriate these techniques are for assessing intergroup behavior in desegregated schools. Sociometric measures

generally require the child to give the names of a very small number of other children who are most preferred as friends or companions for various activities. Thus, these measures have typically focused on assessing fairly intense positive relationships rather than on more neutral sorts of acquaintance relationships. Yet, these less intense relationships are both more numerous and more likely to be open to change than are close friendships. Furthermore, Cohen (1975) makes a convincing argument that intimate friendships should be of less interest to policy makers concerned with the outcomes of desegregated schooling than a variety of more casual social and work relationships. Observational research which directly studies peer interactions in classrooms is well-suited to the study of these latter types of relationships.

Awareness of the need to study directly the behavior of students in desegregated schools has become increasingly intense in the past decade (National Institute of Education, Note 1; Rist, 1979; Schofield, 1978; St. John, 1975). This growing awareness has spawned two new directions in research. First, there has been a spurt of interest in detailed, primarily qualitative, case studies of desegregated schools (Metz, 1978; Rist, 1979; Schofield, 1980; Schofield in press). However, the very strengths of such studies are also potential sources of weakness. The breadth of focus and the exploratory and flexible nature of the data gathering techniques often make it difficult for such studies to speak with authority on some of the individual pieces of the larger picture. Fortunately, the second type of research which has begun to appear relatively recently, the quantitative observational study, has its forte here. Generally, these quantitative observational studies focus on some specific aspect of peer behavior in desegregated schools. Such studies,

like the ethnographic case studies, are relatively few in number compared to the multitude of attitudinal studies. Indeed, to our knowledge, no more than six have been published to date (Schofield, 1979; Schofield & Sagar, 1977; Serow & Solomon, 1979; Shaw, 1973; Silverman & Shaw, 1973; Singleton & Asher, 1977) and some of these studies give no information on the amount of interracial interaction that occurs, but rather correlate the amount of interaction with characteristics of the school or classroom. Yet, these studies, combined with the qualitative case studies, are beginning to give us the first glimpse of interracial behavior in desegregated schools.

These studies strongly suggest that children interact primarily within own-race groups, although the extent of the racial clustering in desegregated schools varies markedly. In some schools, the informal resegregation seems almost total. For example, Cusick and Ayling (Note 2) report that they were unable to have a discussion with a racially-mixed group over lunch at a high school because the informal pattern of segregated black and white tables was so strong that students were unwilling to break it. Schofield and Sagar (1977) found that, at the end of one year of desegregation under very favorable circumstances, black and white students sat next to each other at lunch about one-fifth as often as they would have if race did not enter into seating choices.

The frequent finding of complete or near complete resegregation may well be due to the particular settings in which students have been observed. The observational studies cited above, almost without exception, studied behavior in unsupervised settings in which there was little, if any, task orientation. These settings, such as school lunchrooms, are also those in which students spend relatively little of their school day and in which they may be particularly likely to

associate with close friends. In order to assess accurately the amount of intraracial and interracial interaction that occurs in schools, systematic observation of student behavior in classroom settings is also needed. There is, to our knowledge, only one such published study that provides precise quantitative measures of the amount of interracial interaction which occurs in racially-mixed classrooms. This study (Singleton & Asher, 1977) was carried out in a school which was roughly 80% white. It suggested a much greater amount of cross-race interaction than the studies conducted in non-academic settings. Yet, direct comparison between studies is impeded by the fact that the students in the Singleton and Asher study were in the third grade, whereas junior high age children have been the focus of the majority of the other quantitative observational studies. This age difference is important because there is some evidence suggesting that racial isolation often increases in the late elementary and early junior high school years (Criswell, 1939; St. John, 1975).

The Singleton and Asher study is also important because it is to our knowledge the only published quantitative observational study which included a measure of the quality as well as the quantity of interracial interaction. If the nature of students' behavior is not coded, one has no way of distinguishing between, for example, positive and negative interactions. Thus, even a rudimentary characterization of the observed behavior, such as Singleton and Asher's coding of behavior as either positive or negative, is a big step forward from merely assessing the quantity of interracial behavior.

Although Singleton and Asher (1977) found no difference in the affective tone of the interactions of boys and girls, they did find that boys showed no significant in-group preference in choosing interactants whereas, in contrast, girls did over-choose same race peers in relation to their proportion in the classroom. A few other studies using different methodologies have yielded results consistent with this finding. For example, both Jansen and Gallagher (1966) and Ziomek, Wilson & Ebmeier (Note 3) found more interracial sociometric choice among boys than among girls. Also, Schofield and Sagar (1977) found that boys were more likely to sit with members of a racial out-group in their school cafeteria than were girls, although both groups showed marked in-group preference. Thus, there is some indication of a consistent pattern of greater interracial association by boys than by girls. However, the number of studies investigating this issue is small, and only one has examined the quality as well as the quantity of boys' and girls' cross-race interactions.

The study reported here was designed to begin to fill some of the gaps in our knowledge of peer behavior in desegregated schools outlined above. Specifically, the study was designed to examine both the quantity and the quality of intraracial and interracial interaction in task oriented settings in a racially-mixed school.[1] Since there is a dearth both of prior empirical work and relevant theory, our basic goal was to explore the data thoroughly in order to discover relationships rather than to test numerous hypotheses. However, we did make some tentative predictions based on prior work. First, we hypothesized that children would interact more with peers of their own race than with peers of the other race. A parallel prediction was that children would interact more with peers of their own sex than with children of the

other sex. We also predicted that boys would show less in-group racial bias than would girls. Finally, we hypothesized more interaction between black boys and white girls than between white boys and black girls. This prediction was based on several studies which suggested that to the extent that white norms of feminine beauty are still influential in our culture, black girls may be at a real disadvantage compared to white girls in attracting boys of the opposite race (Petroni, Hirsh, & Petroni, 1970; Schofield, in press).

One factor that could be expected to influence the course of intergroup relations is the extent to which the interactions between the various sex-race groups were mutual (i.e., characterized by discussion or activity on the part of both interaction participants) as opposed to one-sided (i.e., characterized by discussion or activity on the part of one of the interaction participants). When only one individual is noted speaking or acting during one brief observation interval, it is difficult to determine conclusively that the interaction is totally one-sided, since the observed interaction may be a mutual interaction in which participants take turns. Consequently, we approached the problem of determining mutuality indirectly, noting whether one or both persons were actively engaging in the interaction at the moment of observation, and relying upon the cumulative record to detect overall differences in the mutuality of interaction of the four groups (Mutuality).[2]

Decisions about which additional aspects of behavior to code were guided by prior qualitative analyses of those characteristics of behavior that are salient to other children and thus affect the evolution of intergroup relations. First, we agreed with Singleton and Asher (1977) that it was important to get information on the affective tone of peer interactions (Tone). Since many task-oriented classroom

interactions involve little obvious affect, we decided to use a somewhat more differentiated scheme than that used by Singleton and Asher. Thus, we coded behavior as positive, neutral, or negative. Second, we decided to explore the extent to which behaviors were task-oriented or social (Orientation). Such information seemed important since overall group differences in the amount of task-oriented behavior might undermine or reinforce traditional racial stereotypes. It is clear that a great many characteristics of children's peer-directed classroom behavior in addition to the Tone and Orientation could be of considerable theoretical and practical interest. Given time and resource limitations we chose to focus on the characteristics discussed above which we felt to be especially important.[3] Because little prior research of this nature has been conducted, we made no specific predictions about the quality of interracial and intraracial interaction.

Method

The Research Site

Wexler Middle School (a pseudonym) serves approximately 1500 students in grades six through eight in a large Northeastern city. The student body is roughly two-thirds black. The white students typically come from middle- or upper-middle class homes. Although a few of the black children are middle-class, the majority are from working or lower-class homes.

Although the school's strong efforts to provide an ideal environment for interracial interaction have been documented elsewhere (Schofield, in press; Schofield & Sagar, 1979), several examples of these efforts will be mentioned here. Wexler's commitment to fostering equal status contact (Allport, 1954) between majority- and minority-group children was evident in its staffing pattern. The top

four administrative posts were evenly divided between blacks and whites. About 20% of the faculty was black. Mutual interdependence between majority- and minority-group members (Allport, 1954) was enhanced by the fact that Wexler was a relatively new school and by the school's emphasis on various club activities. For example, large numbers of students participated in the formation of new special-interest clubs and in activities designed to raise money for the purchase of equipment for these organizations. Finally, a social climate with norms favorable to intergroup contact (Allport, 1954) was set by the school authorities who clearly endorsed positive intergroup relations and supported an extensive program of activities designed to help students get to know one another.

The study reported here was conducted in accelerated academic classrooms in the eighth grade. Students in this accelerated program attended almost all classes together, mixing with others only in classes like homeroom and gym, and in the lunchroom. Although the majority of these students had attended Wexler since sixth grade, a significant number of them transferred to Wexler as eighth graders to participate in this program. Approximately 80% of the students in this program were white. The rest of the eighth grade was roughly 80% black.

Although observation of honors classes may limit the generalizability of the findings, there was a major advantage to studying the accelerated group. Since students were selected for these classes on the basis of their grade point average and standardized test scores, race and academic performance were not seriously confounded as they often are in studies of social interaction in desegregated schools. Furthermore, a companion study, that will be mentioned briefly in this paper, explored identical questions in the sixth grade which was not

divided into regular and accelerated groups and which, in sharp contrast to the honors classes, was about 70% black. Comparison of the results of these two studies gives useful information on the robustness of this study's findings.

Selection of Classes for Observation

There were eight honors classes in Wexler's eighth grade. (Children were grouped into classes that stayed basically constant in composition as they rotated through different academic subjects). We selected the four classes to be observed as follows. First, two honors classes were eliminated because they did not contain enough transfer students who entered Wexler as eighth graders. (A part of the study not discussed here was designed to focus on differences in interracial behavior between students who had experienced two years in Wexler's well-structured integrated sixth and seventh grades and those who had only segregated schooling before eighth grade). Then, two other classes were eliminated because they did not have at least two members of each of the four sex-race subgroups of interest (i.e., white boys, black boys, white girls, and black girls). The remaining four groups were observed. School officials said that there was no a priori reason to believe that the students in the four classes observed were different from those in the other four classes.

Selection of Subjects Within Classes

All black children in all four classes selected to participate in the study were observed, as were all white girls. Since there were a relatively large number of white boys in the classes observed, a sub-sample of this group was randomly selected for observation so that we would not spend too high a proportion of observation time on this one group. The final sample consisted of 41 white boys, 28 white girls, 10

black boys, and 22 black girls.

Selection of Specific Class Settings for Observation

As discussed previously, our aim was to observe peer behavior in academic class settings. Each class of students selected for observation rotated through five academic subjects taught by different teachers — math, reading, science, language arts, and social studies. We decided to observe students only in the latter three types of classes. This decision was based on the fact that, at Wexler, math and reading are generally taught in a very individualized manner. Furthermore, with rare exceptions, the reading and math classrooms were smaller than other classrooms which made it difficult for observers to remain relatively unobtrusive.

Thus, there were three possible classroom settings -- language arts, science, and social studies -- in which each of the four classes selected for observation could be observed. Of these twelve possible settings, one was eliminated because a teacher refused to cooperate and one because the teacher assigned seats. We decided to observe each class of children in two different settings so that our estimates of any child's behavior would not be dependent on observations made in just one classroom. Thus, from the remaining ten suitable class settings, eight were selected in a way designed to optimize balance in the number of language arts, science, and social studies classes observed and efficiency in the use of observers' time at the school.

Observers

Three graduate students, a black female, a white female, and a white male, were given intensive training with the behavior coding

system during a period of three months. Since observers had to be able to identify the individual children whose behavior was being coded, each observer was assigned to a specific set of classrooms. Each group of children, however, was observed by two different observers.

Observers followed a 15 second observation-coding cycle, with five seconds devoted to observing a designated child, and 10 seconds for coding the observed behavior and locating the next designated child in the sequence. The observer then viewed the second child, coded the observed behavior, moved on to the third child, and so on until all designated children in the classroom had been observed. Then, the observer simply moved to the top of the list and cycled through it again. The children under study in a particular class were observed in a predetermined random order.[4] Although this order did not vary over the course of the study, observers began the sequence at a different point for each new observation period.

Reliability. Reliability checks (i.e., two observers simultaneously coding the behavior of the children in a class) were conducted at about a dozen points during the data gathering phase. Agreement indices (i.e., number of agreements divided by total number of observations) of reliability indicate that, for those trials in which both observers recorded a peer interaction, the mean agreement on the race and sex of the interactant(s) was .96.[5] Similar indices revealed that agreement was .79 for Mutuality, .78 for Tone, and .76 for Orientation. Cohen's kappa (Cohen, 1968), a very conservative measure of reliability which disregards agreements expected by chance, indicated that the reliability for the coding of the race and sex of the

interactant was .94. The kappa reliability for the coding of Mutuality, Tone, and Orientation were .50, .55, and .50, respectively.[6]

Data Gathering Schedule

Data gathered from February 1, 1979 through May 30, 1979 were used in the analyses reported here. Each group of children was scheduled for observation three or four times a week (i.e., two different observers viewing each group in two class settings). All sessions, except those in which observer reliability was being checked, were observed by one person. Observations of the groups were carried out on all five "school days" and at different times of the day so that any cycles in the children's behavior throughout each week or day would not systematically bias the data. Occasionally observation was either precluded (e.g., snow days, vacations, observer illness), or omitted because the collection of a significant amount of useful data appeared unlikely (e.g., on testing days). Data from 163 separate observation sessions were included in these analyses. Thus, no individual observation period accounted for more than 2% of the total number of observations.

Observation sessions coincided with school class periods, lasting approximately 40 minutes. Observers sat in a position which gave them a good view of the students but which was not too obtrusive.

Results

Over the course of four months, observers recorded a total of 4,697 peer interactions during 19,275 five-second coding intervals. This large body of data was reduced to a series of cumulative scores for each child. First, we counted the number of times a child interacted with a member of one of the four sex-race subgroups.[7] Second, from these four

counts, we calculated the proportion of each child's total set of peer interactions which occurred with each of the four subgroups. Finally, we counted each of the several types of interactions (e.g., positive, negative, and neutral) as proportions of each child's total set of peer interactions.

Overall Frequency of Interaction

This study is focused primarily on the patterning of white and black boy's and girl's in-group and intergroup interactions. In order to interpret the data, however, it is useful to know whether the proportion scores are based upon similar or grossly different overall peer interaction rates for each of the four sex-race subject groups. To explore this question, we conducted a 2 x 2 analysis of covariance (subject race by subject sex) on the children's overall peer interaction totals, adjusted for the slight variations in the frequency with which each subject was observed. The analysis of covariance indicated that the effects of sex of subject, F (1, 95) = 2.83, $p < .10$; race of subject, F (1, 95) = .10, $p < .75$; and the sex by race interaction, F (1, 95) = .23, $p < .63$ were not statistically significant, although there was some tendency for boys to interact with others more than girls.

Interaction Rate Analysis

Since the number of potential interactants in a particular sex-role subgroup varied according to the racial and sexual makeup of the class and daily classroom attendance, and the race and sex of the particular child being observed, we calculated the correlation between potential interactant group size and actual interaction rates. Although the relationship was significant ($z = 1.78$, $p = .04$), it was very small ($r = +.18$). The small correlation between the unadjusted interaction

rates and the classroom composition indices indicates that the children interacted primarily within small subgroups whose composition had little to do with the composition of the larger academic group.[8] [Survey research on intergroup contact in desegregated schools suggests a similar conclusion (Roberts, Note 4)]. We did calculate two types of scores corrected for potential interactant group size to see if even this small relationship could be eliminated.[9] However, such corrections failed to alter substantially the magnitude of the relationship. Consequently, in our analyses of interactant choice, we used the unadjusted proportion scores which have a somewhat more straightforward interpretation then either of the corrected scores.[10]

Table 1 shows the distribution of each subject group's interaction with children in the four sex-race categories expressed as proportions of the total number of interactions with all interactant groups. As anticipated, the peer interactions were predominantly ingroup, with 62% of all coded peer interactions occurring between children of the same sex and race. In contrast, under the unlikely null hypothesis of purely random selection of interactants, approximately 30% of the interactions would be expected to be within gender and racial group. The study conducted in the sixth grade, which was briefly mentioned earlier, also found that interactions were predominantly ingroup, with 63% of all coded peer interactions occurring between children of the same sex and race (Sagar & Schofield, Note 5).

Insert Table 1 about here

The four unadjusted proportion scores (e.g., proportion of all peer interactions which occurred with white males) for each subject were entered into a 2 X 2 X 2 X 2 analysis of variance, where the grouping factors were the race and sex of subject, and the trial factors were the race and sex of the interactant.[11]

Results of the analysis of variance indicated that, as predicted, students interacted primarily with other students of their own sex, F (1, 97) = 642.9, $p < .001$. This effect reflects the fact that 83% of all the recorded peer interactions occurred within same-sexed pairs in contrast to the 50% expected in a pattern of random interaction. Parallel results were obtained in the sixth grade with 88% of all interactions occurring between same-sex interactants.

The Subject Race by Interactant Race effect also reached statistical significance, F (1, 97) = 56.55, $p < .001$. Approximately 72% of the recorded peer interactions occurred between same-race interactants in contrast to the 60% expected if interactants were chosen without regard to race. Roughly comparable results were obtained in the sixth grade, with 70% of all recorded peer interactions occurring between same-race interactants.

The strong tendency for school children to interact primarily with those of their own race and sex has been documented previously, and would in fact, be apparent to the careful observer in most racially-mixed classrooms. Less attention, though, has been given to the more complex, but potentially important, joint influences of race and gender. An earlier study of cafeteria seating patterns at Wexler Middle School (Schofield & Sagar, 1977) indicated a higher rate of interracial adjacencies among boys than among girls. In the present study, we tested the generalizability of this gender-related pattern to

classroom behavior. The analysis indicated that, as expected, the four-way interaction, Subject Sex by Subject Race by Interactant Sex by Interactant Race, was statistically significant, F (1, 99) = 32.3, p < .001.

Table 2 presents summary statistics which clarify the effects of the joint influence of race and sex on intergroup interactions, in light of the different number of potential interactants in each subgroup.

Insert Table 2 about here

Planned comparisons indicated that boys interacted across racial lines at a percentage rate (29) very near the rate which would be expected (30) if race had no effect on interaction patterns, t (50) = 1.80, n.s.[12] In contrast, the girls' interacted across racial lines at a rate (22%) less than half that which would be expected if race were not a factor (48%), t (49) = 18.08, p < .001. Parallel, although less striking, results were obtained in the sixth grade, with 31% of all interactions between boys occurring across racial lines, while only 26% of all interactions between girls occurred across racial lines, a difference which is statistically significant, t (68) = 2.87, p < .01.[13]

Just as the degree of racial ingrouping was gender-dependent, it is reasonable to expect that the degree of gender ingrouping might be partially race dependent. In the sixth grade, the gender barrier was significantly less important in the case of black students, whose same race interactions were about twice as likely as those of white students to cross gender lines (14.7 versus 6.5 percent, respectively). In the eighth grade, this effect was not obtained, however. A pairwise

comparison revealed that the percentage of whites' same race behavior which was cross-sex (15%) was not different than the proportion of blacks same race behavior which was cross-sex (15%).

Cross-race, cross-sex interactions were generally quite infrequent, accounting for approximately 5 percent of all interactions. A t-test gave no support to the prediction that those involving white male subjects and black female interactants would be less common than those involving black male subjects and white female interactants, t (99) = .49, n.s.

The extent to which the interactions among the four sex-race subgroups were characterized by mutuality (i.e., mutual vs. one-sided) was the next issue explored. The extremely low per subject rates of cross-sex interaction precluded any meaningful analysis of variance of mutual versus one-sided cross-sex interactions. Thus, we analyzed only the within-sex mutual interaction rate data. This analysis revealed that boys' within-sex interactions were characterized more ($F(2, 176) = 3.91$, $p < .03$) by their mutual nature (56%) than girls' within-sex interactions (47%). There were no statistically significant differences in the mutuality of whites' within-race and blacks' within-race interactions or in the mutuality of cross-race and within-race interactions.

Interaction Quality Analyses

The results discussed up to this point relate to the quantity of interaction between blacks and whites in racially mixed classrooms. Now we turn to analyses of the quality of those peer interactions that did occur. As in the analysis of interaction mutuality, the extremely low per subject rates of cross-sex interaction precluded any meaningful

analysis of variance that included cross-sex interaction data. Thus, the analyses that follow were performed on within-sex interactions only.

Tone

As previously indicated, observers characterized the tone of each recorded peer interaction as (1) positive, (2) neutral/ambiguous, or (3) negative/aggressive. The analysis of interaction Tone, and all subsequent behavioral analyses, were based upon all those behaviors emitted by the subjects in interaction with a peer. A 2 X 2 X 2 X 3 repeated measures analysis of variance was used to analyze these data. The independent variables were sex of subject, race of subject, race of interactant and interaction tone. A main effect for Tone, $F(2, 168) = 175.4$, $p < .001$, reflects the fact that 56% of all peer interaction were coded as positive, 43% were coded as neutral, and less than 1% were coded as negative.[14] However, no significant differences in the proportion of interactions in the three levels of Tone were found as a function of subject sex or race, or interactant race.

Orientation

The observers coded all recorded interactions as either "task-related" or "non-task" in appearance, using the classification "ambiguous" only when there was no reasonable basis for making such a distinction. Table 3 shows the distribution of peer interactions across the three Orientation categories.

Insert Table 3 about here

The Orientation data were analyzed in a manner similar to that used to analyze the Tone data. A main effect for Orientation, $F(2, 168) = 4.51$, $p < .02$, reflects the fact that 33% of all peer interactions were coded as task-oriented, 29% ambiguous, and 39% non-task oriented. A nearly significant Subject race by Interactant race by Orientation interaction, $F(2, 168) = 2.91$, $p < .06$, reflects the fact that: (a) 28% of all within-race interaction was task-related while 38% of all cross-race interaction was task-related ($t(168) = 10.72$, $p < .01$), and (b) 41% of all within-race interaction was social while only 35% of all cross-race interaction is social ($t(168) = 8.69$, $p < .01$).

Discussion

It may not be particularly surprising to discover that, overall, both race and sex affect interactant choice in desegregated schools. Yet, on closer inspection, this study's data do suggest some interesting and unexpected conclusions. Note, for example, that race had essentially no effect on boys' interactant choices and only a moderate effect on girls' interactant choices. Given the almost total racial cleavage found in the majority of earlier behavioral studies, this is quite surprising. For example, in an earlier study, Silverman and Shaw (1973) found that interactions ranged from a low of .67 percent of all interactions observed as students left for the day to a high of 10.3 percent in three schools. These junior high schools were from 30 to 50 percent black. In sharp contrast, over one-quarter of all peer interactions in this study were cross-race. Like some of the children in the Silverman and Shaw study, students at Wexler were in classes which were roughly 30 percent black, so the major difference in interracial interaction rates is striking.

Several factors may help to account for the relatively high rate of interracial interaction observed. Among the most likely factors are: (a) the rough control for academic performance in this study achieved through conducting the research in classes whose students were selected for their high levels of academic achievement, (b) the school's generally strong efforts to create a positive interracial atmosphere, and (c) the fact that classroom behavior was studied rather than behavior in less structured settings like hallways and cafeterias. Comparison of the interaction patterns found in the sixth grade with those in the eighth grade suggests that the last two factors, by themselves, may not enough to account for our findings in the eighth grade since even sixth grade boys, like their female counterparts, showed a definite in-group preference.

It should also be noted that at Wexler racial clustering was noticeably less strong than was gender clustering. This finding is consistent both with results of earlier research in non-academic settings at Wexler (Schofield & Sagar, 1977) and with most other studies which have explored this issue (Krenkel, Note 6; Singleton & Asher, 1977, 1979; St. John & Lewis, 1975). It is, however, important to keep in mind in interpreting the meaning of this finding that adult patterns of association seem to be quite different from childhood patterns. Specifically, whereas most adults develop close, and generally long-lasting, relationships with those of the other sex, they do not appear to develop or maintain much contact with members of other racial groups.

The data on the affective tone of peer interactions suggest that the large majority of these interactions at Wexler, both interracial and intraracial, are relatively friendly. Consistent with the results of Singleton and Asher (1977) and another recent study of classroom interracial behavior (Howe, Hall, Stanback, & Seidman, Note 7), our data suggest both an extremely low frequency of negatively-toned behavior and no tendency for interracial interactions to be more negative than intraracial interactions. As was the case for most of our findings, this also held true in the very different conditions of Wexler's sixth grade, although in that grade, we did find that white children were more likely to engage in clearly positive behaviors than blacks, whereas blacks tended to engage in more neutral behaviors than whites.

At first glance, one might wonder how our data can be reconciled with numerous primarily qualitative studies of life in desegregated schools which suggest that the "hasseling" of whites by blacks is a frequent and recognized phenomenon (Hanna, in press; Scherer & Slawski, 1979; Schofield, 1980). The answer may be that such studies also generally suggest that such "hasseling" occurs most frequently in unsupervised settings such as the restrooms, stairwells and hallways. If this is the case, it is reasonable to speculate that increased supervision of such areas might have a significant effect on black-white relations in desegregated schools.

As was suggested in the introduction, one potential advantage of observational studies relative to traditional sociometric studies is that they provide information regarding the acquaintance and working relationships of children in interracial schools. Such relationships may be more open to change than the fairly intense friendship relations typically assessed by sociometric measures, and they are of considerable

interest in their own right (Cohen, 1975). Our data suggested that cross-race interactions of all groups were more characterized by their task-relatedness than their within-race interactions were. In turn, within-race interactions were characterized more by their non-task or social orientation than their cross-race interactions in spite of the fact that the study took place in academically "accelerated" classrooms. Thus, it may be that children are more open to academically-related interracial relationships than they are to more socially-related interracial relationships. Howe et al. (Note 7) also found that junior high age children were more likely to exhibit cross-race behavior when "on task" than when "off task." Such interracial working relationships can be a significant outcome of desegregated schooling although it must be recognized that they are more likely to develop in situations in which black and white achievement levels are comparable than when they are not.

Our finding that the eighth grade boys show little racial in-group preference, while the girls show a moderate propensity to interact with others of their own race, parallels the results of the one previous quantitative observational study of interracial behavior in classroom settings (Singleton & Asher, 1977). These two studies are in turn consistent with a few other studies which use alternative methodologies and suggest more interracial interaction among boys than girls (Jansen & Gallagher, 1966; Schofield & Sagar, 1977; Ziomek, Wilson, & Ebmeier, Note 3). Boys were also somewhat more likely than girls to be involved in mutual interactions with peers of the other race as well as those of their own. There is considerable evidence that, compared to boys, girls tend both to interact in smaller groups (Laosa & Brophy, 1972; Lever, Note 8; Omark & Edelman, Note 9) and to be less accepting of newcomers

(Eder & Hallinan, 1978). Both of these factors might well contribute to less cross-racial acceptance among girls than among boys.

In general, these classrooms presented a tranquil picture in which students engaged in task- and socially-related activities in relative harmony. This stands somewhat in contrast to the popular image of desegregated inner city middle schools as hot beds of negative verbal and physical behavior, in which academic matters are neglected for purely social activities. Of course, it must be remembered that the observations reported on in this paper occurred in the classrooms of "honors" students, therefore, their generalizability may be somewhat limited.

In summary, the results of this research are surprisingly similar to those of the one other parallel quantitative observational study of peer behavior in desegregated classrooms (Singleton & Asher, 1977) that has been published in spite of major differences in the age of the children and the location of the schools. Specifically, these studies both suggest that race is a less important grouping criterion in classrooms than might have been expected from previous studies in non-academic settings, and that boys are more likely to interact interracially than are girls. These two studies and Howe et al.'s (Note 7) similar one also found a very low frequency of negative behavior in classrooms and no indication that interracial interactions are less positive than intraracial interactions. Although these three studies make a clear contribution to the existing literature by beginning to examine the quality as well as the quantity of peer behavior in desegregated schools, it is clear that further, more refined, and differentiated characterization of such behavior would be very useful.

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Footnotes

[1]At many points in this paper, we refer to the coding of peer "interaction." Strictly speaking, we coded "peer-directed behavior," rather than interaction, since we could not be sure that the behavior of the peer "source" was noted and acted upon (in some way) by the peer "target" in every case. However, we use the term interaction since it seems somewhat less cumbersome than the available more precise alternative. Furthermore, a very high proportion of the coded behaviors did indeed seem to be quick "slices" of on-going interactions.

[2]For each five second interval, observers coded if: (a) the subject was the primary or most salient actor, (b) the interactant was the primary or most salient actor or (c) if both participants were about equally salient or active.

[3]The "Form" of the interaction was also coded as: verbal, nonverbal, object-related, or physical in nature. However, reliability estimates for the coding of this variable were quite low, and discriminant analyses failed to reveal any significant differences in the inter- and intraracial behavior of the subject groups. Therefore, we have not included an extended discussion of this qualitative variable in this paper.

[4]Each student was assigned a unique number in the initial stages of the project. This number was then precoded onto the observational coding sheets prior to entering the classes. The use of codes minimized the possibility of a potentially reactive incident if a child were to glance at the coding sheets.

[5]When trials in which only one observer coded a peer interaction were counted as disagreements and included in the reliability calculation, the agreement index was .80. Cohen's Kappa for interactant race/sex coding was .72 when trials in which only one observer coded a peer interaction were counted as disagreements and included in the calculations.

[6]The reliability levels obtained indicate that the coding system was capturing a substantial "true score" component in the trial level data which can be presumed to be systematic and cumulative over repeated observations (in contrast to the error component which is assumed to be random and non-cumulative; see Hartman, 1977). The statistically significant F-values reported in this paper are reliable effects by definition, since the systematic effect variance is large even in relation to the error variance (McNemar, 1969).

[7]Where multiple interactants were involved, the single interaction was allocated fractionally to the various interactant categories represented. For example, if one subject interacted with one white girl and one black girl within a single coding interval, all interactants were recorded, and we subsequently counted 1/2 of an interaction with the white female and 1/2 of an interaction with the black female. When students were not interacting with others they were coded as being alone. The fact that students frequently worked or played in a solitary manner accounts for the rather large difference between the number of coding intervals and the number of peer interactions recorded.

[8]This pattern undoubtedly reflects, in part, our decision to observe classes whose teachers left the students largely free to determine their own interactant choices. Such practices as alphabetically assigned seating or formation of mixed work groups should induce a much greater relationship between class composition and actual interaction patterns (as well as more intergroup interaction; see Schofield & Sagar, 1979).

[9]The adjusted scores were based on the proportion of each child's total set of peer interactions which involved interactants from each of the four sex-race subgroups (Observed Rates) and the proportion of all available interactants who belonged to the corresponding sex-race groups (Expected Rates). Specifically, two different sets of adjusted scores were calculated: (a) the ratio of Observed to Expected Rates, and (b) the arithmetic difference between the Observed and Expected Rates.

[10]As was mentioned previously, a very similar study in the non-tracked sixth grade was carried out concurrently with the study reported here. As will become apparent, interaction rate results of the sixth grade were strikingly similar to those of the eighth grade, despite the fact that the sixth grade class composition was very different (i.e., the four sex-race subgroups were very nearly equal in size). Thus, class composition appears to bear little relationship to the results reported here.

[11]Because the within-cell distributions of these proportion scores may have violated one assumption of the analysis of variance paradigm -- normal distribution -- an arc sin transformation of the scores was performed, and the adjusted scores were entered into an identical analysis of variance (Mosteller & Tukey, 1968, p. 199). The results of the analysis of transformed scores vary only slightly from

the results of the analysis of untransformed scores which are discussed in this paper (cf. Kirk, 1968, p. 63).

The four unadjusted proportion scores of each subject were also entered into a 2 X 2 X 2 X 2 repeated measures analysis of covariance, where the grouping factors were the race and sex of the subject, and the trial factors were the race and sex of the interactant. As was previously pointed out, the number of potential interactants in a particular sex-race subgroup (e.g., white males) varied according to the racial and sexual makeup of the class, classroom attendance and the race and sex of the particular child being observed. Accordingly, a covariate which changed over the four levels of the two trial factors (i.e., proportion of peer interactions occurring with white male, black male, white female, and black female interactants), and which corresponded to the number of potential interactants for each subject at each level (e.g., number of possible white males interactants in class), was entered into the analysis. The inclusion of the covariate failed to alter the basic pattern of results. All results discussed in this paper were obtained in both the ANOVA and the ANCOVA. The results from the ANOVA and unadjusted means are discussed in this paper because they facilitate presentation.

[12] As previously mentioned, expected interaction rates were based upon the number of potential interactants in each sex-race category. Thus, they depended upon the gender and racial composition of each class and classroom attendance. Expected <u>interracial</u> rates were low for males because of the relatively small number of black males in these classes.

[13]Expected cross-race interaction rates for boys and girls were equal in the sixth grade. Although both males and females interacted with children of the other race at rates significantly lower than those expected if race were not a factor in interactant choice, this tendency was stronger in the girls than the boys.

[14]Our coding procedures stressed descriptive rather than evaluative criteria. Facial expressions, verbal statements, and overt motor behaviors which were negative in appearance (from a conventional, middle-class point of view) were placed automatically in the "negative/aggressive" category, regardless of the actor's presumed intent. Physical blows, verbal or non-verbal threats, obscene gestures, and insults were all regarded "negative/aggressive" by definition, even when the observers suspected that the behavior being coded was playful or meant in jest. If we had not used such a broad definition, the rate of "negative/aggressive" behavior would have been even lower than the extremely modest rate reported here.

Table 1

Distribution of Observed and Expected Peer Interactions Across Interactant Categories (Percentages)

Subject Group	Interactant Group: White Male	Black Male	White Female	Black Female
Males				
White	71	16	08	05
	(44)	(10)	(27)	(19)
Black	53	30	04	12
	(35)	(14)	(22)	(29)
Females				
White	18	04	63	14
	(47)	(10)	(24)	(19)
Black	09	06	21	64
	(40)	(15)	(24)	(21)

Note 1. Subject groups are comprised of those students who were specifically under consideration in this study. Interactant groups are categories of students in a particular classroom with whom a subject might interact during a class period. They are comprised of both members and nonmembers of subject groups.

Note 2. Figures in parentheses indicate the percentage expected under the assumption of random interactant choice within each classroom (i.e., expected peer interaction rate). These expected percentages are not equal to one another because of the unequal number of potential interactants in each subgroup in each of the classrooms.

Table 2

Percentage of Within-Sex Interactions That Occurred Within and Across Racial Lines

Dyad	Within Race	Cross Race
Male-Male	73	27
	(71)	(29)
Female-Female	78	22
	(52)	(48)

Note. Figures in parentheses indicate the expected rate under the assumption of random interactant choice within each classroom. These expected percentages are not equal to one another because of the unequal number of potential interactants in each subgroup in each of the classrooms.

Table 3

Distribution of Within-Sex Peer Interactions across the Three Orientation Categories (Percentages)

		Interactant Group	
Subject Group	Orientation	White	Black
White	Task	28	40
	Ambiguous	30	28
	Social	42	32
Black	Task	35	30
	Ambiguous	23	29
	Social	42	40

Note. As the reader may note, the three percentage scores shown in each quadrant of this table total 100. Six Orientation percentage scores were calculated for each subject. Three of these scores were based on the total number of interactions of each subject with white interactants. The remaining three scores were based on the total number of interactions of each subject with black interactants.